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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,389	03/31/2004	Tadashi Yamamoto	A8701	5820
23373	7590	11/30/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EVANS, GEOFFREY S	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/813,389

Applicant(s)

YAMAMOTO ET AL.

Examiner

Geoffrey S. Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-84 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-84 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 22,23,24,25,26,27,29,30,31,32,33,34,66,67,68-74,84 are rejected under 35 U.S.C. 102(e) as being anticipated by Sun et al. in U.S. Patent Application Publication No. 2006/0131288 A1. Sun et al. discloses material processing using each ultrashort laser pulse to ablate a sublayer (see paragraph 58) of the workpiece and selecting the appropriate pulse parameters (e.g. energy, see paragraph 71) including lengths (i.e. width, see paragraph 71). Sun et al. further discloses laser pulses in the femtosecond and picosecond ranges (see paragraph 57).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1,2,4,5,7,9,10,11,12,14,15,17,19,20,21,22,29,30, 31,32,33,48,49, 50,52,53,54,55,56,66,69,70,71-74,84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2006/0131288

A1. Sun et al. discloses material processing using each ultrashort laser pulse to ablate a sublayer (see paragraph 58) of the workpiece and selecting the appropriate pulse parameters (e.g. energy, see paragraph 71) including lengths (i.e. width, see paragraph 71) and of various wavelengths (e.g. see claim 22 of Sun et al.). This discloses to one of ordinary skill in the art the second pulse width can be shorter than the first pulse width. Sun et al. further discloses laser pulses in the femtosecond and picosecond ranges (see paragraph 57).

5. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2006/0131288 A1 as applied to claim 1 above and further in view of Jennings in U.S. Patent Application Publication No. 2003/0196995A. Jennings teaches measuring pulse width at full width half maximum (see paragraph 36). It would have been obvious to adapt Sun et al. in view of Jennings to provide this to measure the pulse widths by a known standard.

6. Claims 6,16,24-28,51, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2006/0131288 A1 as applied to claims 1,12,22, 48, and 66 and further in view of Sasaki et al. in U.S. Patent Application Publication No. 2003/0216012 A1. Sasaki et al. teaches using pulses of different vectors of polarization (see paragraph 136). It would have been obvious to adapt Sun et al. in view of Sasaki to provide this so that more energy is absorbed by the material.

7. Claims 8,18,23,53,67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. (288) as applied to claims 1,12,22,48 and 66 above, and further in view

of Yamazaki et al. in U.S. Patent Application Publication No. 2004/0214411. Yamazaki et al. teach laser processing with a pulse frequency greater than 100 kHz (see paragraph 122). It would have been obvious to adapt Sun et al. in view of Yamazaki et al. to provide this to efficiently laser process the material.

8. Claims 35,36,39,40,41,43-47,57,58,59,61,63-65,75,78,79-83,84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2006/0131288 A1 in view of Forsman et al. in U.S. Patent No. 6,664,498. Sun et al. discloses material processing using each ultrashort laser pulse to ablate a sublayer (see paragraph 58) of the workpiece and selecting the appropriate pulse parameters (e.g. energy, see paragraph 71) including lengths (i.e. width, see paragraph 71) and of various wavelengths (e.g. see claim 22 of Sun et al.). This discloses to one of ordinary skill in the art the second pulse width can be shorter than the first pulse width. Sun et al. further discloses laser pulses in the femtosecond and picosecond ranges (see paragraph 57). Sun et al. does not disclose overlapping pulses. Forsman et al. teach overlapping pulses (see figure 2B). It would have been obvious to adapt Sun et al. in view of Forsman et al. to provide this to enhance machining removal rate.

9. Claims 37,62 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2006/0131288 A1 in view of Forsman et al. in U.S. Patent No. 6,664,498 as applied to claims 35,57 and 75 above, and further in view of Yamazaki et al. in U.S. Patent Application Publication No. 2004/0214411. Yamazaki et al. teach laser processing with a pulse frequency greater

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than 100 kHz (see paragraph 122). It would have been obvious to adapt Sun et al. in view of Forsman et al and Yamazaki et al. to provide to efficiently laser process the material.

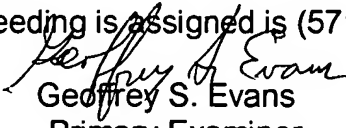
10. Claims 38,42,60 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. in U.S. Patent Application Publication No. 2006/0131288 A1 in view of Forsman et al. in U.S. Patent No. 6,664,498 as applied to claims 35,57 and 75 above, and further in view of Sasaki et al. in U.S. Patent Application Publication No. 2003/0216012 A1. Sasaki et al. teaches using pulses of different vectors of polarization (see paragraph 136). It would have been obvious to adapt Sun et al. in view of Forsman et al. and Sasaki to provide this so that more energy is absorbed by the material.

11. Applicant's arguments with respect to claims of record have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571)-272-1292. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

GSE

  
Geoffrey S. Evans  
Primary Examiner  
Group 1700